

SECTION 06400

ARCHITECTURAL WOODWORK

PART 1 - GENERAL

1.1 SUMMARY

- A. **Description:** Provide architectural woodwork as indicated on the Drawings and specified in this Section. Architectural woodwork includes all exposed wood and plastic fabrications commonly known as "finish carpentry" or "millwork", together with related hardware, and DuPont Zodiaq countertops, unless such items are specified in another Section of these Specifications. Locations and extent of architectural woodwork items are indicated on the Drawings.
- B. **Types of Architectural Woodwork:** This Section includes but is not necessarily limited to the following.
 - 1. Cabinets and tops, plastic (casework).
 - 2. Wood base
 - 3. Solid-surfacing material.
 - 4. DuPont Zodiaq countertops
 - 5. Shelving (fixed and adjustable, wood and plastic laminate).
 - 6. Closet and utility shelving.
 - 7. Hardware for cabinets and adjustable shelves.
 - 8. Definitions: "Exposed", "semi-exposed" and "concealed" as used in this Section to describe surfaces and materials shall be as defined in AWI "Quality Standards".
- C. **Hardware:** Furnish all hardware for cabinets and adjustable shelves; shop-install mortise hardware. Furnish, for field installation, shelf brackets and closet hanging rods.
- D. **Rough Hardware:** Furnish and install clip angles and brackets for supporting and attaching woodwork items. Install rough hardware items specified in Section 05500 for supporting and attaching woodwork items.
- E. **Related Work:**
 - 1. Section 03331 - Cast-In-Place Architectural Concrete: For work if this section abutting concrete.
 - 2. Section 04200 - Unit Masonry: For work if this section abutting CMU.
 - 3. Section 06100 - Rough Carpentry includes furring, blocking, and other carpentry work that is not exposed to view.
 - 4. Section 09910 - Painting includes final finishing of installed architectural woodwork.

1.2 QUALITY ASSURANCE

- A. **Fabricator Qualifications:** Shop that employs skilled workers who custom-fabricate products similar to those required for this Project and whose products have a record of successful in-service performance. Shop is a certified participant in AWI's Quality Certification Program.
- B. **Single-Source Responsibility:** Arrange for production by a single firm of architectural woodwork with sequence matched wood veneers; or composite veneers as selected.

- C. **Source Limitations:** Engage a qualified woodworking firm to assume undivided responsibility for production of interior architectural woodwork with sequence-matched wood veneers and wood doors with face veneers that are sequence matched with woodwork and transparent-finished wood doors that are required to be of same species as woodwork.
- D. **Installer Qualifications:** Shall be Fabricator of products and a certified participant in AWI's Quality Certification Program.
- E. **AWI Quality Standard:** Unless otherwise indicated, comply with AWI's "Architectural Woodwork Quality Standards" for grades of interior architectural woodwork, construction, finishes, and other requirements
 - 1. The Contract Documents contain selections chosen from options in the quality standard and additional requirements beyond those of the quality standard. Comply with such selections and requirements in addition to the quality standard
- F. **Preinstallation Conference:** Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination."

1.3 SUBMITTALS

- A. **General:** Submit the following in accordance with General Conditions.
- B. **Product Data:** Manufacturers' specifications and recommendations for the following products incorporated into items of architectural woodwork:
 - 1. DuPont Zodiaq .
 - 2. Cabinet hardware and accessories.
 - 3. Metal wall panel system
- C. **Shop Drawings:** Dimensioned, detailed drawings prepared by manufacturer showing location of each item, plans and elevations, large-scale details, attachment devices, and other components.
- D. **Samples for Verification Purposes:**
 - 1. Laminate clad and metal panel products, 8-1/2 inches by 11 inches for each type, color, pattern, and surface finish. Provide samples of the following components, with specified edge treatment on two adjacent edges:
 - a. Tops.
 - b. Cabinet doors.
 - c. Cabinet end.
 - 2. DuPont Zodiaq material, 8-1/2 inches, by 11 inches for each type, color, pattern, and surface finish.
 - 3. Exposed cabinet hardware, one unit of each type and finish.
 - 4. Decorative metal samples, approximately 8 inches by 10 inches, for each material and finish.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. **Protection:** Protect woodwork during transit, delivery, storage, and handling to prevent damage, soiling, and deterioration.
- B. **Delivery:** Do not deliver woodwork until painting, wet work, grinding, and similar operations that could damage, soil, or deteriorate woodwork have been completed in installation areas.

- C. **Storage:** Store items at project site in installation spaces where possible. If woodwork must be stored in other than installation areas, store only in areas whose environmental conditions meet requirements specified in "Project Conditions."

1.5 PROJECT CONDITIONS

- A. **Environmental Conditions:** Obtain and comply with Woodwork Manufacturer's advice for optimum temperature and humidity conditions for woodwork during its storage and installation. Do not install woodwork until these conditions have been attained and stabilized so that woodwork is within plus or minus 1.0 percent of optimum moisture content from date of installation through remainder of construction period.
- B. **Field Measurements:** Where woodwork is indicated to be fitted to other construction, check actual dimensions of other construction by accurate field measurements before manufacturing woodwork; show recorded measurements on final shop drawings. Coordinate manufacturing schedule with construction progress to avoid delay of Work.
1. Where field measurements cannot be made without delaying the Work, guarantee dimensions and proceed with manufacture of woodwork without field measurements. Coordinate other construction to ensure that actual dimensions correspond to guaranteed dimensions.

PART 2 - PRODUCTS

2.1 PRODUCT STANDARDS

- A. **General:** Provide materials that comply with requirements of the AWI woodworking standard for each type of woodwork and quality grade indicated.
- B. **Components:** Where the following products are part of woodwork, comply with requirements of the following product standards:
1. Hardboard: ANSI/AHA A135.4.
 2. Medium Density Fiberboard: ANSI A208.2.
 3. Particleboard: ANSI A208.1.
 4. Softwood Plywood: PS 1.
- C. **Formaldehyde Emission Levels:** Comply with formaldehyde emission requirements of each voluntary standard referenced below:
1. Particleboard: NPA 8.
 2. Medium Density Fiberboard: NPA 9.
 3. Hardwood Plywood: HPMA FE.

2.2 BASIC MATERIALS

- A. **Requirements:**
1. Moisture content - 8 to 13 percent for interior items, 10 to 15 percent for exterior items.
 2. Shop applied veneer - All plastic laminate shall be shop applied, unless otherwise specifically indicated.
 3. Glue - Moisture resistant type recommended by manufacturer of material to be glued.
 4. Finishes -
 - a. All maple solid lumber and plywood shall receive transparent finish as specified under the work of Section 09900.

- b. All other woodwork, except decorative metal, plastic laminate covered and DuPont Zodiaq materials, shall receive opaque finish under the work of Section 09900.

B. Plastic Laminate Construction:

1. Colors, Patterns, Textures: Selected by the Architect, as indicated on the Drawings.
2. Face Veneer: High pressure decorative laminate, NEMA LD-3, Grade GP-50 (min. 0.050" thick) for horizontal surfaces, and NEMA LD-3, Grade GP-28 (min. 0.028" thick) for vertical surfaces.
3. Cabinet Liner: High pressure decorative laminate, NEMA LD-3, Grade CL-20, (min. 0.020" thick), intended for cabinet interiors; light color (beige or off-white) as selected by Architect.
4. Backing Sheet: High pressure non-decorative laminate, NEMA LD-3, Grade BK-20, (min. 0.020" thick), intended for concealed applications.
5. Core Material: Close-grained hardwood veneer plywood, AWI Grade III, exterior type, at tops with sinks and lavatories.
6. Melamine Panels (AWI "LPDL" overlay): "Domtar Decorative Panels" or similar medium density particleboard or fiberboard panels with thermally fused melamine resin-impregnated face. Melamine panels shall meet or exceed American Laminators Assn. "Performance Standard for Thermoset Decorative Panels - ALA 1988".

C. Solid Surfacing Material: Homogeneous solid sheets of filled plastic resin complying with the material and performance requirements of ANSI Z 124.3 Type 5 or Type 6, without a pre-coated finish.

1. Corian.
2. Substitutions: Other manufacturers will require pre-bid approval.

D. Hardwood for Opaque Finish: AWI Grade II for exposed and Grade III for semi-exposed portions.

1. Lumber: Birch, Basswood, Gum, Poplar, or other close-grained species, at the manufacturer's option.
2. Plywood: Hardwood veneer plywood, 3/4-inch thick unless otherwise indicated.
 - a. Species - Birch, Basswood, Gum, Poplar, or other close-grained species at the manufacturer's option.
 - b. Veneer cut, match and grain direction - Manufacturer's option, except face veneer shall be parallel to long dimension of shelves.
 - c. Core construction - Veneer core. Medium density particleboard core conforming with ANSI A208.1 may be substituted for veneer core, except at shelves.
3. Band exposed plywood edges with compatible hardwood.

E. Softwood Lumber and Plywood for Concealed Applications: AWI Grade III.

1. Lumber - Any species graded by SPIB, WCLIB, or WWP, at the manufacturer's option.
2. Plywood - Any softwood species complying with PS-1/ANSI A199.1 standards; APA Interior Type, veneer core, B-B grade; 3/4-inch thick unless otherwise indicated.

2.3 DUPONT ZODIAQ

A. Acceptable Products:

- a. Dupont Zodiaq

- B. **Joint Adhesive:** Manufacturer's standard adhesive kit to create inconspicuous, non-porous joints.
- C. **Fabrication:** Factory fabricate components to greatest extent practicable to sizes and shapes indicated, in accordance with approved shop drawings. Form inconspicuous joints using manufacturer's standard joint adhesive.
- D. **Fabrication:**
 - 1. **General:** Comply with Drawing details and approved shop drawings. Follow instructions provided by manufacturer. Accurately cut units to required sizes and shapes and to produce uniform joints. Provide holes and openings for accessories and fittings as necessary; coordinate locations and sizes with suppliers of items to be installed in tops. Dress joints straight and perpendicular to face.
 - 2. **Finishing:** Finish faces and edges which will be exposed after installation to polished finish.

2.4 FIRE-RETARDANT-TREATED MATERIALS

- A. **General:** Where indicated, use materials impregnated with fire-retardant chemical formulations indicated by a pressure process or other means acceptable to authorities having jurisdiction to produce products with fire-test-response characteristics specified.
 - 1. Do not use treated material that does not comply with requirements of referenced woodworking standard or that is warped, discolored, or otherwise defective.
 - 2. Use fire-retardant-treatment formulations that do not bleed through or otherwise adversely affect finishes. Do not use colorants in solution to distinguish treated material from untreated material.
- B. **Fire-Retardant-Treated Lumber and Plywood by Pressure Process:** Comply with AWPA C20 (lumber) and AWPA C27 (plywood), for woodwork items indicated as fire-retardant treated.

2.5 FABRICATION, GENERAL

- A. **Dimensions:** Fabricate woodwork to dimensions, profiles, and details indicated. Ease edges to radius indicated for the following:
 - 1. Corners of cabinets and edges of solid wood (lumber) members less than 1 inch in nominal thickness: 1/16 inch.
 - 2. Edges of rails and similar members more than 1 inch in nominal thickness: 1/8 inch.
- B. **Shop Fabrication:** Complete fabrication, including assembly, finishing, and hardware application, before shipment to project site to maximum extent possible. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.
- C. **Openings and Mortises:** Factory-cut openings, to maximum extent possible, to receive hardware, appliances, plumbing fixtures, electrical work, and similar items. Locate openings accurately and use templates or roughing-in diagrams to produce accurately sized and shaped openings. Smooth edges of cutouts and, where located in countertops and similar exposures, seal edges of cutouts with a water-resistant coating.

- D. **Shelves and Tops:** Fabricate shelves, tops, and similar horizontal components subject to applied loads when in use with the grain of lumber (face grain of plywood) parallel to the long dimension.

2.6 STANDING AND RUNNING TRIM FOR OPAQUE FINISH

- A. **Quality Standard:** Comply with AWI Section 300.
- B. **Grade:** Premium Grade throughout.
 - 1. Wood Species: Hardwood for opaque finish.
- C. **Fabrication:** Backout or groove backs of flat trim members and kerf backs of other wide flat members, except for members with ends exposed in finished work.
 - 1. Assemble casings and moldings in plant except where limitations of access to place of installation require field assembly.
 - 2. Splicing of trim not permitted at openings. Avoid splicing in all other areas if material length is available.

2.7 LAMINATE CLAD CABINETS (PLASTIC-COVERED CASEWORK)

- A. **Quality Standard:** Comply with AWI Section 400 and its Division 400B "Laminate Clad Cabinets", "Premium" Grade, except as otherwise specified in this Section:
- B. **Materials:** Plastic laminate products specified under BASIC MATERIALS.
- C. **AWI Type of Cabinet Construction:** Flush overlay.
- D. **Laminate Cladding:** Color, pattern, and finish selected by the Architect.
 - 1. Horizontal Surfaces (other than tops): GP-50 (0.050-inch nominal thickness). Includes shelves and cabinet bottoms.
 - 2. Exposed Vertical Surfaces: GP-28 (0.028-inch nominal thickness).
 - 3. Doors and adjustable shelves shall have the same laminate on both faces and all edges (except laminate not required on ends of shelves).
 - 4. Semi-Exposed Surfaces (except doors, shelves and cabinet interior bottoms): Melamine panels.
 - 5. Edges: Same as adjacent surface; GP-28 required at melamine panel edges.
 - 6. Apply balancing sheet to opposite or underside of components not double faced with plastic laminate, wherever unsupported component is over 4 sq. ft., in accordance with AWI standards. Apply cabinet liner at semi-exposed surfaces; apply backing sheet at concealed surfaces.
- E. **Fabrication:**
 - 1. Finish both faces of doors and adjustable shelves with identical laminate, applied in same machine direction.
 - 2. Provide dust panels of 1/4-inch plywood or tempered hardboard above compartments and drawers except where located directly under tops.
 - 3. Neatly and accurately fit plastic laminate. Bevel exposed edges of veneer. Finish all four edges of doors and drawer fronts, and all exposed edges of tops, backsplashes, and dividers with same material as used for top or facing.
 - 4. Semi-Exposed Surfaces: Apply cabinet liner to inside surfaces of drawers; to cabinet sides, backs and bottoms; and to top, bottom, and long edges of fixed shelves behind cabinet doors.
 - 5. Semi-Exposed Surfaces: Use melamine-faced panel material for semi-exposed surfaces, except doors, shelves and cabinet bottoms, which shall be plastic

laminate specified for horizontal surfaces, and unsupported components over 4 sq. ft., where cabinet liner is required.

2.8 ARCHITECTURAL CABINET TOPS (COUNTERTOPS)

- A. **Quality Standard:** Comply with AWI Section 400 and its Division 400C.
- B. **Grade:** Premium.
- C. **Type of Top:** High pressure decorative laminate, color, pattern, and finish selected by the A/E and specified under BASIC MATERIALS.
 - 1. **Laminate Cladding for Horizontal Surface:** GP-50 (0.050-inch nominal thickness) high pressure decorative laminate.
 - 2. **Pattern Direction:** Parallel to longest dimension.
 - 3. **Edge Treatment:** Same as laminate cladding on horizontal surfaces, or lumber edge for transparent finish matching wood species and cut on cabinet surfaces, where indicated.

2.9 SOLID SURFACING MATERIAL COUNTERTOPS

- A. **Quality Standard:** Comply with AWI Section 400 and its Division 400C.
- B. **Grade:** Custom Grade throughout.
- C. **Fabrication:** Fabricate tops in one piece with shop-applied backsplashes and edges, unless otherwise indicated. Comply with solid surfacing material manufacturing manufacturer's recommendations for adhesives, sealers, fabrication, and finishing.
 - 1. Drill holes in countertops for plumbing fittings and soap dispensers in the shop.
 - 2. **Thickness:** ½ inch minimum or as otherwise indicated.
 - 3. **Colors:** Match Architect's sample.

2.10 DUPONT ZODIAQ COUNTERTOPS

- A. **Quality Standard:** Comply with AWI Section 400 and its Division 400C.
- B. **Fabricate** as per manufacturers directions
- C. **Grade:** Premium.
- D. **Type of Top:** Factory fabricate components to greatest extent practicable to sizes and shapes indicated, in accordance with approved shop drawings. Form inconspicuous joints using manufacturer's standard joint adhesive

2.11 CABINET HARDWARE AND ACCESSORY MATERIALS

- A. **General:** Provide cabinet hardware and accessory materials associated with architectural cabinets, except for items specified in Division 8 Section "Finish Hardware." Provide all items required to make woodwork function per design. Submit brochures and samples for approval.
- B. **Manufacturer:** Where products are specified by manufacturer name and number, only the named products (or Architect approved equals) will be acceptable.
- C. **Base and Wall Cabinet Doors and Drawers:**

1. Each Door:
 - a. One pair Blum "Modul 125", Stanley 1511 Series, or similar concealed self-closing hinges, nickel-plated finish. Provide mounting plates for half overlay installation where necessary at multiple doors.
 - b. Pulls: Doug Mockett "DP3A" (3 inches wide), satin chrome (26D) finish.
 - c. One Ives #325, Stanley SP46, Epcos 591, or similar, double pole magnetic catch, aluminum case, with satin natural finish.
 - d. Two rubber, or resilient plastic, disc type mutes.
 2. Each Drawer:
 - a. One set Accuride Model 4033/100 lbs., or similar side-mount progressive heavy-duty 100 lb. extension drawer slides, zinc plated finish.
 - 1) Length as selected by Architect. Drawers of differing depth may require different length slides.
 - b. Pulls: One Doug Mockett "DP3A" (3 inches wide), satin chrome (26D) finish..
 - c. Two rubber, or resilient plastic, disc type mutes.
 - d. At File Drawers: Hafele Hanging File Rail 422.71.901
 3. Locks:
 - a. Each door shall have a chrome faced dead bolt type lock #CB-231 with Type 231 cylinder body as manufactured by Timberline Supply, LTD (1-800-Lockbar). Key alike. Furnish 8 keys.
 4. Each set of shelves:
 - a. Four KV 255, Stanley 798, Grant 120, or similar flush mortised standards, adjustable on 1/2" centers, bright nickel-plated finish.
 - b. Four KV 256, Stanley 799, Grant 121, or similar, support clips, bright nickel-plated finish, for each shelf.
- D. **Closet Hangrods:** Schedule 40 galvanized steel pipe, nominal 1-inch size (1.3" o.d.), with wall flanges.
- E. **Trash management grommet at bathrooms:** TM1B (Doug Mockett Company, Manhattan Beach, California, or approved equal) - 6" x 2" polished stainless steel.
- F. **Grommets:** Series EDP (Doug Mockett Company, Manhattan Beach, California, or approved equal). ABS plastic wire access grommets with slotted cover. Color - black. Size - 3" dia. (2-1/2" hole); 5/8" deep; 5/8" cord slot in cover.
- G. **Lavatory Counter Removable Panels:** Secure with exposed security-head, stainless steel machine screws, located near each panel corner. Drill and tap steel supports for screws at time of installation.

2.12 ROUGH HARDWARE

- A. **Fasteners and Anchors:** Select material, type, size and finish appropriate to each use and substrate. Use stainless steel or aluminum nails, and non-ferrous or hot-dip galvanized anchors and inserts for exterior work. Provide toothed steel or lead expansion bolt devices for drilled anchors.
- B. **Counter Brackets:** For support where indicated, provide prime painted steel brackets formed of 3/16" x 1-1/2" material. Grind smooth all edges, corners and surfaces to eliminate cutting and snagging hazards.
- C. **Field Splice Connectors:** For field assembled joints in tops, provide and prepare for bolt-up type fasteners such as KV 516 "Tite Joint" splice assemblies.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Condition woodwork to average prevailing humidity conditions in installation areas before installing.
- B. Deliver inserts and anchoring devices to be built into substrates well in advance of time substrates are to be built.
- C. Before installing architectural woodwork, examine installation locations and shop-fabricated work for completion. Do not proceed with woodwork installation until preparatory work and installation spaces are satisfactory. Complete woodwork as required, including back priming and removal of packing.

3.2 INSTALLATION

- A. **Quality Standard:** Install woodwork to comply with AWI Section 1700 for same grade specified in Part 2 of this section for type of woodwork involved.
 - 1. Install woodwork plumb, level, true, and straight with no distortions. Shim as required with concealed shims. Install to a tolerance of 1/8 inch in 8'-0" for plumb and level (including tops) and with no variations in flushness of adjoining surfaces.
 - 2. Scribe and cut woodwork to fit adjoining work and refinish cut surfaces or repair damaged finish at cuts.
 - 3. Anchor woodwork to anchors or blocking built in or directly attached to substrates. Secure to grounds, stripping and blocking with countersunk, concealed fasteners and blind nailing as required for a complete installation. Except where prefinished matching fastener heads are required, use fine finishing nails for exposed nailing, countersunk and filled flush with woodwork and matching final finish where transparent finish is indicated.
- B. **Standing and Running Trim and Rails:** Install with minimum number of joints possible, using full-length pieces (from maximum length of lumber available) to the greatest extent possible. Stagger joints in adjacent and related members. Cope at returns and miter at corners.
- C. **Cabinets:** Install without distortion so that doors and drawers fit openings properly and are accurately aligned. Adjust hardware to center doors and drawers in openings and to provide unencumbered operation. Complete the installation of hardware and accessory items as indicated. Maintain veneer sequence matching (if any) of cabinets with transparent finish.
- D. **Tops:** Anchor securely to base units and other support systems as indicated.
- E. **DuPont Zodiaq Material:** Keep components and hands clean during installation. Form field joints using manufacturer's recommended adhesive, with joints inconspicuous in finished work. Caulk joints between DuPont Zodiaq and other materials with color-matched sealant approved by DuPont. Remove excess adhesives, sealants and other foreign materials from DuPont Zodiaq and adjacent surfaces. Keep clean until Substantial Completion. Replace stained components.
 - 1. Install fabricated units as indicated on the Drawings. Employ skilled fitters and installers. Set granite to comply with the following tolerances:
 - a. Plumb and level, without variation more than 1/8" in 8 feet (non-cumulative).

- b. Flush condition at adjoining faces and edges, without variation (lipping) in excess of $1/32"$.
- c. Joints nominally $1/16"$ wide, plus $1/16"$, minus $1/32"$.

F. Field Finish: Refer to the Division 9 sections for final finishing of installed architectural woodwork.

3.3 ADJUSTMENT AND CLEANING

A. Woodwork:

1. Repair damaged and defective woodwork where possible to eliminate defects functionally and visually; where not possible to repair, replace woodwork. Adjust joinery for uniform appearance.
2. Clean, lubricate, and adjust hardware.
3. Clean woodwork on exposed and semi-exposed surfaces. Touch up factory-applied finishes to restore damaged or soiled areas.

B. Other Work: Clean surfaces soiled or marred by woodwork installation. Repair or remove and replace with new material items which are damaged or cannot be acceptably cleaned.

C. Protection: Provide temporary protection and maintain conditions that ensure that work is without damage or deterioration at time of Substantial Completion.

END OF SECTION 06400